1970

The Effect of Self-Directed Structure versus Adult-Directed Structure in the Learning of Articulation Skills in First and Second Grade Boys and Girls

Doris Elaine Haley
Central Washington University

18

THE EFFECT OF SELF-DIRECTED STRUCTURE VERSUS ADULT-DIRECTED STRUCTURE IN THE LEARNING OF ARTICULATION SKILLS IN FIRST AND SECOND GRADE BOYS AND GIRLS

A Thesis

Presented to

the Graduate Faculty

Central Washington State College

In Partial Fulfillment

of the Requirements for the degree

Master of Education

---

by

Doris Elaine Haley

August 1970

APPROVED FOR THE GRADUATE FACULTY

_____

James P. Levell, COMMITTEE CHAIRMAN

_____

Mark Worden

_____

Walter L. LaDue

ACKNOWLEDGMENTS

The author would like to express her thanks to Dr. James Levell for his many hours of persistent thesis inspection and sagacious advice, to Dr. Walter LaDue and Mr. Mark Worden for help in clarification of thesis design, and to Dr. Frank Nelson for help with statistical resource materials.

Thanks are also due to Yakima Superintendent of Schools Dr. Jack Frisk, Principals Eyler Elliott and Bernard Dillon, and the many first and second grade teachers influenced by and involved in the collection of data. Appreciation is due the observer Miss Judith Tuggle, whose interest and enthusiasm were inspirational to the author; to District #7 Speech Therapists Mrs. Beatrice Williams, Mrs. Zena Sanborn, and Mrs. Sandra St. Mary for their persistence in listening to tapes; to Reading Specialist Mrs. Betty Merrick and Librarian Mrs. Ellen Brzoska for aid given in the selection of control group reading materials.

Gratitude is here expressed to my husband, whose sustaining compassion, approval, and concern has nurtured, challenged, and enabled the author to complete this thesis.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The need for speech therapy has been acknowledged since the time of Moses. As early as 300 B.C. Demosthenes held pebbles in his mouth while speaking, ran rapidly uphill, talking as he ran, and sought to speak against the ocean's roar, thus overcoming speech deficiencies to become one of Athens' great orators. The American Speech and Hearing Association was founded in 1925. The first journals in the area of speech correction were published shortly thereafter, and emphasis and interest have been progressively increasing, particularly since World War II. This comparatively new discipline has drawn educators in the area of speech correction, speech correctionists and pathologists, and researchers of the speech disorders of cleft palate, cerebral palsied, stuttering, cluttering, speech of the deaf and hard of hearing, speech of the mentally retarded, aphasia, delayed speech, and articulation.

Perhaps the foremost exponent and most-imitated authority in the area of articulation has been Charles Van Riper. His method is that of auditory stimulation, and has come to be accepted as the basic (or traditional) method of speech-sound correction. Ear training is here emphasized.

The child identifies the sound by identifying the characteristics of the error. He learns distinguishing traits of the sound. The child is stimulated for the sound, receiving a barrage of the correct sound. The child is trained to listen to sound sequences, nonsense syllables, or connected speech to detect the presence of a certain sound, thus isolating the sound in its context. Discriminating the defective sound is the most difficult step in Van Riper's auditory stimulation method. Here the child must compare the correct sound with the sound that is in error. He must hear the difference and recognize the contrasts involved (Van Riper, 1954, pp. 221-225).

In his auditory stimulation approach to the correction of a sound, Charles Van Riper describes auditory stimulation as a method that "relies upon simple imitation and demand. If the ear training has been adequate, the sound should be correct on the first attempt . . . He should then be encouraged to repeat the sound, prolong it, and to sense the 'feel' of it (Van Riper, 1965, p. 264)."

Some speech discrimination studies such as those conducted by Travis and Rasmus (1931), Kronvall and Diehl (1954), and Milisen and his students (1954) indicate that auditory perception may be one of the main etiologies underlying disorders of articulation. They advocate that sound stimulation should be an integral part of therapy in the correction of a sound.

The auditory stimulation method of therapy is adult-directed. The E plans each session in advance, and carries through during the session with goals and activities as planned. The S is required to listen, often for several sessions, and during these listening sessions he is not often encouraged to verbalize beyond the minimal sound production necessary for completion of the particular listening activity being stressed. As the S is able to produce an acceptable sound he is encouraged to practice the sound by means of a naming activity (saying the names of stimulus objects or pictures) in single-word contexts. The S progresses to conversational speech through a series of simple tasks of progressively increasing difficulty. The approach is inductive.

There are other approaches in use. Some are variations of the Van Riper theme, while others represent radical departures (e.g. the moto-kinesthetic phonetic approach and operant conditioning). One such departure has been the so-called environmental approach of Ollie Backus and Jane Beasley. Their approach assumes that " . . . behavior takes place as an interaction with environment (Backus & Beasley, 1951, p. 11)." According to the environmental approach, speech therapy ought to occur within an environment which is similar to that encountered by the person in his daily living. Part of their thesis is that the individual preserves the all-important dimension of interpersonal rela-

tionships, principally because communication is demanded and most human speech occurs within these relationships.

The Backus and Beasley method is deductive. They contend that, "Learning proceeds from whole to parts by a process of progressive differentiation (Backus & Beasley, 1951, p. 18)." And "the whole," to them, is the whole child -- his personality, his ways of relating to adults and peers, his image of himself, his aspirations and his fears. They believe that the functional organization of the S must be considered first, later his total speech impact, and finally a specific sound unit.

Backus and Beasley (1951) speak of marked changes in clinical practice due to modifications in theory. They assert that:

(1) group instruction should form the core of speech therapy. One S interacting with a teacher will not experience the interpersonal relationships that would be made available to him in a group of eight or nine Ss.

(2) speech symptoms should not be the determining factor in group membership. This avoids the trauma that might occur from "labelling" a child "cleft-palate" or "stutterer".

(3) the structure of the session should be geared to provision for corrective "emotional" experience. Backus and Beasley here describe the "intellectual" exercises imposed by many speech therapists. They suggest a "living through of significant experiences in the present (p. 45)." Stress is here placed upon interpersonal relationships, where a child can belong, learn of rational authority, accept himself, gain recognition, and learn social skills.

(4) the teaching situation should be structured to provide conversational speech.

The Backus and Beasley method is also adult-structured, but it allows for more flexibility within the structure. The focal point appears to be that of interpersonal relationships involving the therapist and child as well as responsiveness between children within a speech therapy group. By comparison, the Van Riper method focuses on the correction of the defective sound.

In contrast to the Van Riper auditory stimulation (child listening) approach, Backus and Beasley report (1951, p. 5) that their studies indicate that sound stimulation is not the critical step in the correction of a sound. Ollie Backus writes in the Journal of Speech and Hearing Disorders:

> "The structure of therapy needs to be defined both in terms of therapist and client. The critical changes in behavior of clients are viewed as those occurring at dynamic levels, which make possible changes in observable behavior. What the therapist does is conceived of not so much in terms of specific behavioral procedures, as in terms of creating the kind of environment in which clients become able to change (June, 1952, p. 122)."

Few studies have been conducted comparing the learning of correct sounds by Ss following the use of varying techniques or approaches in articulation therapy. Furthermore, most studies listed in the literature are conducted in college clinical settings rather than in the public school. The majority of speech therapists listed in the American Speech and Hearing Association Directory serve the public school population, working in an environment unlike the college clinic.

The limited number of studies comparing therapeutic techniques in a clinic situation have shown some evidence of favoring the auditory stimulation method over the phonetic placement method or the combined visual and auditory stimulation approach when compared with phonetic placement (Humphrey & Milisen, 1954; Scott & Milisen, 1954; Van Riper & Irwin, 1958; Ness, 1932; Philips, 1951). There are no reports in the literature, however, regarding studies which compared the auditory stimulation approach and the environmental approach to speech correction as described by Backus and Beasley.

The purpose of this study was to compare the outcomes of therapy utilizing the Van Riper traditional method and therapy using a modification of the Backus and Beasley environmental approach.

Significance of the study. A larger percentage of speech therapists and pathologists are employed by public school districts than by any other agency (Directory, 1966). The case loads in the public schools far exceed the individual clinician's ability to schedule and to plan for remedial procedures. It is therefore imperative that the most effective therapeutic techniques available to the public school speech therapist be utilized.

Definitions, Assumptions, Limitations

Definitions

Articulation skills. Such skill includes the identification of a specific phoneme, discrimination of phonemes

with varying characteristics, positioning of the specific phoneme in words, ability to say the sound unit correctly in isolation, to combine it with other phonemes, to move the unit into meaningful words, sentences, and finally the capacity to use the phoneme in expressive speech.

Auditory perception. Intact, the ability to synthesize sounds into words or analyze word parts, to relate visual components of words to their auditory equivalents, hence to make generalizations required in learning to read (Johnson and Myklebust, 1967, p. 173).

Assumptions

It seems essential to assume that the E did not "favor" either the auditory stimulation method or the modified (self-directed) environmental approach to the learning of a correct sound production.

Limitations

Some Ss had received no speech therapy prior to their participation in this study, but many of the Ss had received speech therapy previously. Because of these experiential differences, Ss had to be grouped and compared according to their background of previous therapy sessions.

Phoneme correction by classroom teachers, parents, counselors, and other significant persons involved in the life of the Ss could not be controlled. The potential for correction of a sound-unit brought about by the activity of

other persons was thus a non-measurable limitation of the study.

Using a $5,000. ceiling on annual income per family from which Ss were drawn proposed a limitation. It could not be assumed that speech-deviant children from a higher socio-economic status would necessarily respond in the same manner as the Ss used in the sample.

The size of two of the groups was altered because of changes of residence.

The Problem

Statement of the problem. The comparative effectiveness of two speech correction approaches was studied in the therapeutic situation (within the program and the setting of the public school). The Van Riper adult-directed auditory stimulation method, used by many speech therapists today, was compared with a self-directed and modified Backus and Beasley approach to sound correction. The problem resolved was: Which method will be most effective in helping first and second grade children acquire adequate articulation skills?

For purposes of this study, the Backus and Beasley method was modified and practiced as follows:

(1) The Ss were told that they had an error sound.
(2) The Ss were shown games where word naming or conversational speech was the rule.
(3) The Ss were introduced to tools that encouraged sound production (amplifier, nasal olive, naming games, pictures).
(4) The Ss were grouped by threes.

(5) Following the fourth session, the Ss planned their own therapy for subsequent sessions.
(6) Speech symptoms were classified articulation, and were varied in the environmental (self-directed) groups because of reinforcement possibilities by peers who could make an acceptable sound (thus providing additional models, along with the E).
(7) The E assumed a more neutral role, allowing the Ss more freedom. The E schedule of response to behavior was no more frequent in self-directed sessions than other S response. However, the E did impose structure where needed, and did stress that the session remain speech-centered.

Hypotheses.

(1) At the conclusion of therapy, individuals in the B Group (receiving self-directed therapy) will make significantly fewer errors in the production of selected phonemes than individuals in the A Group (receiving adult-directed therapy).

(2) At the conclusion of therapy, individuals in the B Group will make significantly fewer errors in the production of selected phonemes than individuals in the C Group.

(3) At the conclusion of therapy, individuals in the A Group will make significantly fewer errors in the production of selected phonemes than individuals in the C Group.

(4) The difference between mean scores on pre-test and post-test for the A Group, using 30 pictures with initial, medial, and final sound combinations , will reflect significant improvement after therapy.

(5) The difference between mean scores on pre-test and post-test for the B Group, using 30 pictures with initial, medial, and final sound combinations, will reflect sig-

nificant improvement after therapy.

(6) The difference between mean scores on pre-test and post-test for the C Group, using 30 pictures with initial, medial, and final sound combinations, will not reflect significant improvement after therapy.

CHAPTER II

METHOD

A sample of 27 first and second grade speech-deviant children was drawn from two elementary schools in Yakima, Washington. They were administered the Photo Articulation Test by Pendergast, Dickey, Selmar, and Soder in order to identify their specific deviant sounds before therapy began. These 27 children were then assigned to sub-groups of three Ss each. The E worked with one sub-group at a time. The Ss in the three sub-groups were matched between the groups by the following factors:

(1) grade one or two in the public school
(2) no known organic involvement (tongue-thrusting and mal-occlusion excepted)
(3) Primary Mental Ability intelligence test scores within a 20-point range in a sound group
(4) same sex matched across the sound group (adult-directed, self-directed, control)
(5) socio-economic similarity (family income less than $5,000. per year)
(6) Ss matched as closely as possible according to past speech therapy received

The sub-groups were designated adult-directed, self-directed, and control, with Ss divided between the three sections within each school in order to match them as nearly as possible on the basis of the grouping criteria. The matched groups were seen in the same environmental setting within each school at approximately the same hour twice

each week. Sessions were 20 minutes in length. The Ss were seen for nine weeks for an 18-session total, not including the diagnostic session to determine phoneme deficiency.

The adult-directed sub-groups were matched within each group on the same sound misarticulated or similar multiple articulation errors. They received Van Riper's adult-structured and adult-directed therapy by the E. The adult-directed groups were told, by the E, "You will remember when we looked at the pictures. I found that you needed to work on making a better ____ sound. Listen (the E here produced the sound in isolation)." The E then identified the phoneme by pairing it with a picture of an animal or an object that represented and included the sound (e.g. the cartoon figures of Sammy Snake, Randy Rooster, Koughing Katey). He then set up an activity to discriminate the isolated sound from other sounds; moving to discrimination of the sound in words, initial position; and finally, discrimination of the sound in any position of an isolated word. The E isolated the sound in words as therapy progressed, stimulated for the correct sound, used phonetic placement (tongue and jaw placing to achieve the sound desired), and set up activities to practice the correct sound as soon as it was produced (first in isolated words, then phrases, sentences, and finally in conversational speech). The therapy plan for each sub-group was recorded in advance of each session on a 4" x 6" card that contained the name of each S in that group.

The self-directed groups were also told by the E that they needed to learn to make a better sound. Explanation was the same as used with the adult-directed group, except that speech symptoms were not a grouping criterion in the self-directed groups, so sounds needing correction varied. Ss in the self-directed groups also had their sound identified by the E as in the adult-directed groups, but individually as required. For the first three sessions, they were shown games, in a way similar to that which was used to show them to the adult-directed groups, except that sound discrimination and isolating the sound in words was not used. The self-directed group games were geared to isolated word naming and conversational speech. These first games were planned by the E.

The fourth session was used in experimenting with some of the tools available (amplifier, nasal olive, speech therapy kit, mirror, and picture cards). The E demonstrated their use. During the fourth session, the Ss were told, "I think you can decide what games we need to play, and what you need to do to correct your sound. Now, do you have some ideas about what we might do next time?"

No phonetic placement was demonstrated in the self-directed groups. That is, the E did not show the self-directed group Ss how to make their sound.

At the close of the fourth session the Ss planned for the next session and for each subsequent session. The card

used for recording was the same as the traditional group's 4" x 6" card. The Ss were asked, at the close of each session, what they thought they should do next time to work on making a better sound. (The E aided the group by listing the tools they had previously seen and by again stressing speech centeredness of the activity planned). Then the E recorded the group plan for the next session.

Following the fourth therapy session, it was intended that the E would assume a more neutral role in the group. The E tried not to use positive or negative statements or gestures any more frequently than the Ss within the group. The intensity of E participation was supposed to decrease in the self-directed groups as therapy progressed.

An observer was employed to record the positive and negative statements and gestures given in response to sound production of Ss by both the E and/or other Ss in the adult-directed and the self-directed therapy groups. A minus sign (-) was to be marked for a negative statement or gesture, and a plus (+) was to be marked for a positive statement or gesture. The O was also to tally E direction of or restructuring of group behavior and E direction of individual S behavior, and to record a check (✔) when such restructuring occurred. The O was a college senior majoring in speech correction. She sat in the same place in the therapy room for each session, apart from the Ss and E, carrying only tablet and pen, making no comment to the Ss or E during the

session itself. O response recording was not shared with the E until the experiment was completed.

The O was instructed as follows, "I would like for you to tally all responses to S behavior that you see occurring during this therapy session. Simply mark a plus for statements or gestures you think are positive ("Yes", "Right", head nodding, smiles, etc.). Make a minus for statements or gestures you think are negative ("No, "Wrong", head shaking, etc.). If the E directs or restructures the group's behavior during the therapy session, make a check mark (✔) in the space indicated. If the E directs a single S's behavior during the therapy session, make a check mark (✔) in the space indicated. You will come into the room at the beginning of the therapy session, sit here (indicating a chair) and make no comment or seek no communication with the E or any S in the group. You will simply tally on this form (initial form and tablet provided by the E) in your tablet. (See Appendix.) At the beginning or close of the session you may smile and exchange greetings if a S speaks to you, but do not converse with him." It was explained to the Ss that the O was learning to be a speech teacher, and that she was watching very closely what was happening in "our" group, and writing it down so that she could share it with the E later. "So we won't bother her."

The control group plans and materials were listed on the same kind of 4" x 6" card. Stories were read to the

control group, and questions were asked and answered. The story titles, number of pages read, time spent in reading, and time spent in dialogue was recorded (time estimates noted following each control group session).

Prior to the treatment phase of speech therapy, all Ss were tested by having them say the names of pictures representing words taken from Better Speech and Better Reading, a practice book by Lucille Schoolfield, Magnolia, Massachusetts: Expression Company, 1951. The Ss' sound productions as responses to the visual stimuli were recorded on 1/4" sound tapes on a Master Works model M-690-A tape recorder. The tapes were then evaluated by three District #7 speech therapists in order to identify and tally the frequency of correct sound productions, by each S, of the isolated sound being evaluated within an isolated word context. The three raters rated independently, then collaborated on findings of each S's adequacy in the production of the phoneme being evaluated. A total score was reported for each S. The therapists re-ran tapes, when necessary, to arrive at a common conclusion.

Ten pictures representing words containing the phoneme in the initial position of the word, ten pictures with medial position emphasis, and ten pictures with final position phoneme emphasis were presented to each S in the adult-directed and self-directed groups for the isolated sound unit to be emphasized in his/her group. In the case

of the control groups, where a specific sound unit was not identified, the defective phoneme found to be most noticeable with each S was taped as outlined for the other two groups. Each correct production scored one point. Scores ranged from zero to ten on each word position, for a possible total of 30 for each S. At the conclusion of the nine-week study, the S's responses to the same 30 stimulus pictures were recorded and re-evaluated.

The difference between the raw scores of Group A, Group B, and Group C, before and after the experiment, was then subjected to the Mann-Whitney U Test in order to determine the significance of the difference between the raw scores of the groups (hypotheses 1, 2, and 3) and the significance of raw score differences in pre-test and post-test evaluations within each group (hypotheses 4, 5, and 6).

In treatment of O data, responses to sound production by both E and Ss were recorded in order to determine whether or not there were actual differences between the two experimental groups in frequency and type of E responses and S responses to each other. The Ss' responses were to be tallied to determine the amount of peer approval or disapproval directed toward sounds produced by other Ss in each of the experimental groups. Each E restructuring response to an individual S's behavior and to group behavior was recorded in the two experimental groups to determine frequency differences when comparing the A Group and the B Group.

CHAPTER III

RESULTS

The purpose of this study was to compare two approaches to speech therapy and to determine whether either was superior in terms of subjects' improved speech sounds. Two kinds of hypotheses were stated; one having to do with differences between groups at the conclusion of therapy, and the other concerning differences within groups on the basis of before and after testing.

Hypothesis 1 stated that at the close of therapy, individuals in the self-directed group (termed "B") would make significantly fewer errors in the production of selected phonemes than individuals in the adult-directed group (termed "A"). Individuals in both groups were tested before and after therapy on a picture naming test to determine how many of a selected group of phonemes they could produce correctly. Their difference scores were submitted to the Mann-Whitney U Test. Using $p = .05$ as the accepted level of confidence, Table 1 shows that the U test revealed no significant difference between the two groups in their performances on the picture naming test. Therefore, one cannot reject a null hypothesis of "no significant difference" between the A and the B groups, but the directional hypothesis that the B

Group will improve significantly more than the A Group can be rejected.

TABLE 1

MANN-WHITNEY U TEST RESULTS FOR COMPARISON BETWEEN GROUPS A AND B

Group	n	N	U Value	P
A	9	17	33	> .05
B	8			

As Table 2 shows, at the conclusion of therapy, individuals in the B Group did not make significantly fewer errors in the production of selected phonemes than individuals in the control group (termed "C"). Therefore, the null hypothesis in relation to the differences between these two groups may not be rejected, and the directional hypothesis (H_2) that the B Group will improve significantly more than the C Group, must be rejected.

TABLE 2

MANN-WHITNEY U TEST RESULTS FOR COMPARISON BETWEEN GROUPS B AND C

Group	n	N	U Value	P
B	8	16	16.5	.059
C	8			

The results presented in Table 3 show that at the conclusion of therapy, individuals in the A Group did make significantly fewer ($p = .05$) errors in the production of the selected phonemes than individuals in the C Group. Hypothesis 3, stating that the A Group will improve significantly more than the C Group, is accepted.

TABLE 3

MANN-WHITNEY U TEST RESULTS FOR COMPARISON BETWEEN GROUPS A AND C

Group	n	N	U Value	P
A	9	17	18.5	.05
C	8			

Hypothesis 4 stated that the mean of the post-test scores of individuals in Group A would reflect a significant degree of improvement in comparison with their pre-test mean scores. The information given in Table 4 shows that while the "least improved" individual corrected none of the selected phonemes in any sound position, the "most improved" S had corrected 27 sound unit positions in selected specific words. The mean number of corrected sound positions was 13.33, reflecting a change which was significant at the .005 level.

Hypothesis 5 compared pre-test and post-test mean scores within the B Group, stating that a significant degree

of improvement would be evidenced following therapy. The information given in Table 5 shows that while the "least improved" individual corrected none of the selected phonemes in any sound position, the "most improved" S had corrected 23 sound unit positions in selected specific words. The mean number of corrected sound positions for the B Group was 11.5, indicating a change which was significant at the .041 level.

Hypothesis 6 stated that there would be no significant difference between mean scores on pre-test and post-test within Group C. The C Group S's "correct" and "corrected" specific sound unit positions are outlined individually on Table 6. The U value for these data do not allow for the rejection of the null hypothesis at the .05 level of confidence.

When a comparison was made between pre-test results in Group A, pre-test results in Group B, and pre-test results in Group C, it was found that "correct" sound productions before therapy for Group B Ss totaled 52 and "correct" sound productions before therapy for Group C Ss totaled 53. However, pre-test scores showed that Group A Ss' "correct" sound productions totaled 25, less than half of Ss' pre-test total scores for either Group B or Group C. The pre-test mean score was then divided into the post-test mean score for each group to determine a percentage of correction within each group. The A Group correction was 570%, the B group

TABLE 4

PRE-TEST AND POST-TEST CORRECT SOUND PRODUCTIONS

FOR GROUP A ON THE PICTURE NAMING TEST

S	No. Correct Sound Productions Before Therapy	No. Correct Sound Productions After Therapy	Net No. Sound Positions "Corrected"
A	11	12	1
B	0	7	7
C	0	21	21
D	3	30	27
E	9	29	20
F	2	27	25
G	0	12	12
H	0	7	7
I	0	0	0
Mean	2.78	16.11	13.33
U		10.5*	
U′	70.5		

* p = .005

TABLE 5

PRE-TEST AND POST-TEST CORRECT SOUND PRODUCTIONS

FOR GROUP B ON THE PICTURE NAMING TEST

S	No. Correct Sound Productions Before Therapy	No. Correct Sound Productions After Therapy	Net No. Sound Positions "Corrected"
A	4	4	0
B	0	7	7
C	10	22	12
D	7	30	21
E	0	3	3
F	16	26	10
G	6	29	23
H	9	23	12
Mean	6.5	18	11.5
U		15*	
U′	49		

* p = .041

TABLE 6

PRE-TEST AND POST-TEST CORRECT SOUND PRODUCTIONS

FOR GROUP C ON THE PICTURE NAMING TEST

S	No. Correct Sound Productions Before Therapy	No. Correct Sound Productions After Therapy	Net No. Sound Positions "Corrected"
A	0	0	0
B	20	27	7
C	16	24	8
D	14	15	1
E	0	19	19
F	0	7	7
G	0	1	1
H	3	1	-2
Mean	6.63	11.75	5.12
U		20*	
U'	44		

* p = .117

correction was 277%, and the C Group correction was 177%. These percentages would seem to indicate that the A Group improved 2.06 times as much as the B Group, the B Group improved 1.56 times as much as the C Group, and the A Group improved 3.22 times as much as the C Group.

Observer data was examined at the close of therapy. It was found that the O did not tally and record all E responses to sound production as was required by the research design, nor were S responses to each other recorded as planned. The information, therefore, is not reported in the study since it would serve no useful function. In regard to restructuring of group and individual behavior by the E, however, the O recorded these E behaviors as she was instructed, and this information is presented in Table 7 below, where it can be seen that, contrary to original intentions, the E actually did more restructuring for individuals in the B Group than in the Group A.

TABLE 7

E RESTRUCTURING BEHAVIOR IN GROUPS A AND B

Group	Restructuring Individual Ss Behavior	Restructuring Group Behavior	Cumulative Frequency of Behavior Restructuring
A (N=9)	102 (M=11)	72	174
B (N=8)	109 (M=14)	59	168

CHAPTER IV

DISCUSSION

Many speech clinicians have stated the need for experimental studies demonstrating varying techniques in the speech therapy situation, and more specifically in the public school setting where most graduates in speech correction work in the area of articulation.

The three sub-groups in this study who received adult-directed Van Riper therapy made slow, consistent progress in the ability to discriminate sounds as therapy progressed. They practiced doing adult-structured activities with adult-selected goals that consisted of a specific sound identification, stimulation, discrimination, and positioning of the same selected phoneme in a variety of word positions (initial, medial, and final). The A Group Ss learned what they had practiced, and even though all of the Ss did not demonstrate sound correction on the picture naming post-test, all Ss demonstrated gains in the ability to discriminate specific sound unit characteristics while participating in phoneme discrimination activities in therapy sessions.

The three sub-groups receiving modified Backus and Beasley self-directed therapy also learned what they had practiced. During the fourth therapy session, the E intro-

duced these Ss to materials which would be available for their use during all later sessions. Then, at the end of the next several sessions, the E reminded them that these materials were available. The Ss would select an activity for the subsequent session twice weekly; and as therapy progressed they took increasingly more initiative and responsibility for subsequent session planning. They often modified the E's suggested activity "rules", though the suggested changes made by the Ss were slight. There were occasions when two consecutive therapy sessions were similar, but the Ss, arriving at their own consensus, varied the activity by the time of a third session. The E often reminded Ss that the activity selected "must be speech-centered." When this reminding took place, Ss invariably responded by choosing a game involving picture cards to be named. The picture cards always contained the S's sound and/or sounds (sounds were varied in the B sub-groups), but the selection made was taken from varying card sizes.

B Group Ss became increasingly interactive with one another in activity selection (e.g. "Do you want to do it that way?"), token selection (e.g. "Which car do you want?"), and concern for taking turns in order. On the other hand, A Group Ss became increasingly dependent upon the E for decision-making, activity "rule" clarification, and even token selection (e.g. "Which car should I take?"). A Group Ss looked to the E for approval, and interacted

little with the other Ss except in turn-taking and competing for attention from the E or from the other Ss in the sub-group.

These observations indicate that even though there were no significant differences between the two experimental groups on the picture naming test at the conclusion of therapy, there were apparently some other kinds of learning taking place -- namely, as in the case of the A Group Ss, dependency upon the decision-making E; and in the case of the B Group Ss, independence requiring initiative to solve problems (activity selection for the subsequent session) and increasing interdependence with regard to the necessity of involvement of other Ss in the sub-group in activity selection.

The nine control group Ss listened to stories that were read by the E. Control group Ss would often move around on their chairs, stand up, temporarily sit on the table, or interrupt the story to share personal thoughts (which were listened to by the E, and commented upon briefly when the E considered it appropriate to do so). As the sessions progressed, C Group Ss became increasingly restless, as demonstrated by excessive movement, and several Ss began to ask for games to play. The Ss continued to ask for games until the therapy sessions were terminated.

The B Group Ss were told they had an "error sound," and reminded that they should focus attention on that sound,

but the C Group Ss were simply told that they were "coming to speech." In spite of this difference, correction of sound position in the post-test showed that the B Group did not improve significantly more than the C Group ($p = .059$). On the other hand, the A Group showed significant improvement in sound production ($p = .05$) over the C Group.

When the three District # 7 speech therapists evaluated the sounds in the pre-test words that were named by each S, they found that the Ss in Group B had a total of 52 "correct" productions and that the Ss in Group C had 53 "correct" productions. At the same time the Ss in Group A had a total of only 25 "correct" productions, less than half of the "correct" sound position responses of the Ss in Groups B and C. This discrepancy in phoneme error sounds between the groups in initial testing was not discovered until therapy was well underway, and may be due in part to the limitations of availability of Ss for the research as well as to grouping limitations brought about by using Ss from two schools which, in turn, produced a mismatching of some Ss on the pre-test.

According to Table 6, C Group individuals corrected an average of 5.12 sound positions. Although this amount of improvement failed to reach significance at the .05 level it is obvious that some correction took place even though "therapy" consisted only of listening to stories and comments at regularly scheduled intervals in a small group.

Specific sound units evaluated in this research included the (s), (r), (th), (sh), and (l). Berry and Eisenson (1956, p. 36) cite Poole's data in stating that the (s), (r), and (th) sounds develop in some children as late as age seven and one-half. The Speech and Hearing Clinic at the University of Utah has pooled the chronological age chart results of Poole, Wellman and Templin, and place the (s), (r), (sh), and (l) at age five and one-half, with the (th) phoneme fixed at age six and one-half. When considering this evidence, one cannot discard the possibility that maturational factors may represent an uncontrollable variable which operated to influence the performance of children in all three of the groups used in this research. But if this is so, then the difference reported between Groups A and C would seem to be even more significant. Traditional speech therapy does appear to make a difference -- at least in terms of how children perform on a picture naming test!

When comparing the pre-test and the post-test graphic score sheets accompanying the Photo Articulation Test, it was found that the A Group Ss corrected more phonemes across all three positions (initial, medial, and final) plus blend sound positions than either the B or the C Groups. B Group Ss, on the other hand, corrected sound errors in an inconsistent manner (e.g. initial position "l", medial position "s", initial and final position "th"). It should be noted that the B Group sound unit correction pattern follows the

normal developmental pattern that emerges when a child is first learning to talk (Metraux, 1950, pp. 37-53; Berry and Eisenson, pp. 35-39). Although they did not correct as many errors as the B Group Ss the C Group Ss' sound correction pattern is similar to the B Group's pattern on the Photo Articulation Test; that is, a more "natural" pattern.

Table 7 shows O data that was recorded as restructuring individual and group behavior by the E. Though the design prescribed that the E become more neutral as therapy progressed in Group B, Table 7 shows that E intervention did not follow this pattern. In fact, the E intervened more frequently with individuals in Group B; but group restructuring was most frequent in Group A.

However, the E approach to restructuring individual S and group behavior may have differed between the A Group and the B Group. That is, in the A Group the E gave directions, specifically set the structure, then usually withdrew from activity involvement in order to attend to S's sound productions. By contrast, the E usually asked the Ss in the B Group what they were going to do "today," assisted in structuring the activity only where Ss "forgot," and usually, during early sessions, asked the Ss, "Is it all right if I play?" As sessions progressed, the E was invariably included in activity participation.

All other O data was discarded due to a misunderstanding in the communication between the E and O regarding

frequency of response tabulation and S response to other Ss rather than simply to the E. The O did make the following observations: (1) the E was more active in the B Group than was prescribed by the research method, (2) E responses were more consistent in the A Group, more erratic in the B Group, though frequency of response was similar, (3) positive and negative frequency of responses to sound production by the E was similar in both groups, and (4) the Ss were more active in making positive and negative responses to other Ss in the B Group than in the A Group.

As a follow-up to this study, it might be profitable, after an arbitrary period of time, to again evaluate the A Group Ss and the B Group Ss to assess continued sound unit correction progress as well as stabilization of the "corrected" sounds in conversational speech. It is possible that the B Group Ss might have continued to correct sounds as a result of speech awareness and of learning to make decisions that solve problems as well as becoming more independent and interdependent. On the other hand, it might be found that first and second grade boys and girls from low income families depend upon some adult authority and adult-imposed structure to insure phoneme correction.

Finally, in the light of this study, it would seem reasonable to assert that articulation therapy should continue to include a structured base of ear training activities. The outcomes also suggest that providing opportuni-

ties for self-direction in therapy enhances both the correction of defective speech sounds and the development of initiative, creativity, independence and peer group interdependence.

CHAPTER V

SUMMARY

Two approaches to the learning of articulation skills were studied to determine the method found to be the most effective when employed during an 18-session schedule over a period of nine weeks. Nine Ss received adult-directed therapy (Group A), eight received self-directed therapy (Group B), and eight were in a control group (Group C) where they listened to stories read aloud by the E.

Neither the adult-directed therapy nor the self-directed therapy appeared to be significantly superior in promoting the acquisition of articulation skills, for significant phoneme correction took place in both the A Group and the B Group. However, other learnings appeared to have taken place. Namely, the A Group Ss became more dependent upon the E, more able to accomplish specific sound placements or discriminations in the therapy activities, more consistent in sound position at the termination of therapy, and less involved with or dependent upon other Ss in the sub-group. B Group Ss, on the other hand, became less dependent upon the E and more spontaneous, tending to initiate ideas and action. They were able to identify the sound units which others in the group were working on, tended to

correct many sounds in varying word positions, and became more interdependent (seeking ideas and feelings from other Ss in the sub-group).

The control group Ss also made some sound correction, though the amount of correction was not significant at the .05 level. Control group Ss worked at trying to change their environment from one of inactivity and listening to an adult to one of interaction (they asked for something to do).

Mismatching of Ss on the criterion of error sounds on the picture naming pre-test may have influenced the range of error correction in the A Group in that they had a total of only 25 errors on the pre-test while the B Group and the C Group had 52 and 53 total errors respectively.

Maturation was an uncontrollable variable which may have been responsible for some of the sound correction that was reported in this study.

It is recommended that more action research be implemented within the setting of the public school, comparing the effectiveness of different therapy methods. Further, it is asserted that articulation therapy should continue to provide a structured base of ear training activities; and that the addition of more pupil self direction in therapy will probably produce initiative, creativity, independence and peer group interdependence.

REFERENCES

American speech & hearing association, Directory, Washington, D.C.: American Speech & Hearing Association, 1966.

Backus, O., The use of a group structure in speech therapy, Journal of speech & hearing disorders, June 1952, 17, 122.

Backus, O. & Beasley, J., Speech therapy with children, Cambridge: Houghton Mifflin Co., 1951.

Berry, M. & Eisenson, J., Speech disorders, principles and practices of therapy, New York: Appleton-Century-Crofts, Inc., 1956, 35-39.

Humphrey, W. & Milisen, R., A study of the ability to reproduce unfamiliar sounds which have been presented orally, Journal of speech & hearing disorders, monograph supplement, no. 4, 1954, 57-70.

Johnson, D. & Myklebust, H., Learning disabilities, educational principles & practice, New York: Grune & Stratton, 1967, 173.

Kronvall, E. & Diehl, C., The relationship of auditory discrimination to articulatory defects of children with no known organic impairment, Journal of speech & hearing disorders, September 1954, 19, 338.

Metraux, R., Speech profiles of the pre-school child 18-54 months, Journal of speech & hearing disorders, Vol. 15, no. 1, 1950, 37-53.

Ness, A., Comparison of the response and stimulation methods of re-education of speech defectives, M.A. thesis, State University of Iowa, 1932.

Philips, B., An evaluation of two methods of teaching selected consonant sounds to primary grade children, Ph.D. thesis, Pennsylvania State College, 1951.

Reese, E., The analysis of human operant behavior, Dubuque, Iowa: Wm. C. Brown Co., 1966, 3-4.

Scott, D. & Milisen, R., The effectiveness of combined visual-auditory stimulation upon the speech responses of defective speaking children, Journal of speech & hearing disorders, monograph supplement, no. 4, 1954, 37-44.

Travis, L. & Rasmus, B., The speech sound discrimination ability of cases with functional disorders of articulation, Quarterly journal of speech, 1931, 17, 217.

Van Riper, C., Speech correction principles and methods, 3rd ed., New Jersey: Prentice-Hall, Inc., 1954, 221-225.

Van Riper, C., Speech correction principles and methods, 4th ed., New Jersey: Prentice-Hall, Inc., 1965, 264-265.

Van Riper, C. & Irwin, J., Voice and articulation, New Jersey: Prentiss-Hall, Inc., 1958.

APPENDIX

APPENDIX

SAMPLE OBSERVER RECORDING FORM

Session 1	Group A	Group B
E response to sound production	+ + − − + + +	+ + − + + +
S response to sound production	+ +	− + + − − +

Group A

E Directs group behavior ✓ ✓ ✓ ✓

E Directs individual S behavior ✓ ✓

Group B

E Directs group behavior ✓ ✓

E Directs S behavior ✓ ✓ ✓